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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,784	03/15/2004	David M. Marchand	NM 7625	9196

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EXAMINER	
DRODGE, JOSEPH W	

ART UNIT	PAPER NUMBER
1723	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/800,784	MARCHAND ET AL.	
	Examiner	Art Unit	
	Joseph W. Drodge	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b) This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,8 and 9 remain rejected under 35 U.S.C. 102(b) as being anticipated by Spainhour patent 3,331,819.

Spainhour discloses a method of extracting water and alcohol from a mixture with a cyclopentadiene such as methylcyclopentadiene (column 3, line 14) that comprises mixing alcohol and water to the cyclopentadiene by at least addition of diluent and pouring steps in polymerization processes (column 4, lines 12-27 and 55-57), followed by a step of adding additional water and alcohol to the material mixture during a washing step, then separating a created aqueous fraction comprising both the pre-existing residual water and alcohol and that added by the washing in a step of drying (see especially column 4, lines 28-34 and 57-60). Also Example II (column 5, lines 52-61) clarifies that di (cyclopentadiene) material is mixed with water present in the form of aqueous solutions, and with diluting methanol, then has further water added thereto by water washing, preceding a step of drying to remove aqueous fraction from concentrated organic fraction.

For claim 2, methanol is added (column 4, line 18). For claims 1 and 8, there is inherently less water and alcohol after drying than before the addition of alcohol and water to create the mixture since the drying is inferred as producing a polymeric product

sufficiently dry to be plasticized and molded and have high optical clarity (column 4, lines 35-40).

For product-by-process claim 9, a , methylcyclopentadiene or other cyclopentadiene which is relatively purified and dried is produced (column 4). If necessary, the product disclosed by Spainhour has the properties of the claimed product (low amounts of water and alcohol), see In re Thorpe.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spainhour, taken alone. Claim 3 specifically requires 2-methoxyethanol, however Spainhour at column 4, lines 18-19 states that any alcohol can be used as diluent in the polymerization process. For claims 4 and 5, Examples II and III concern relatively small amounts of water in ml are added to larger amounts of cyclopentadiene present in gram quantities (column 5, lines 52-65), but do not give volume percentages of the further added water. It would have been obvious to optimize the ratio of water, alcohol or other diluent and other substances such as catalysts to optimize reaction kinetics.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spainhour in view of Krouse et al patent 6,544,319. Claims 6 and 7 differ in requiring a subsequent step of processing organic or diene-containing fraction over a bed of molecular sieve or activated alumina. However, Krouse teaches use of a molecular sieve to remove contaminants including alcohol and water from a diene polymer (column 2, lines 13-23 and column 4, lines 10-19) to yield a highly purified diene (column 5, lines 21-34). It would have been obvious to one of ordinary skill in the art to have added the additional purification steps utilizing sieve or alumina bed taught by Krouse in the Spainhour process, to yield a highly purified product such as of 99.99%+ purity. Such motivation is expressly taught at Krouse at column 5, lines 11-26.

The following additional prior art is made of record and although not relied upon is considered pertinent to applicant's disclosure. McGuire et al patent 3,696,051;

Shapiro et al patent 2,898,354 and Brown et al patent 2,818,417 are all directed to processing of methylcylopentadiene manganese tricarbonyl and removal of contaminants using solvents including alcohols and water and techniques including distillation, filtration and washing.

Applicant's arguments filed on 24 October 2006 have been fully considered but they are not persuasive. It is argued that the disclosed water-washing,of diene mixture of pouring of diene mixture into a bottle of water disclosed by Spainhour is not equivalent to adding water to an "MMT" crude. It is submitted that the instant claims are not limited to processes concerning use of diene mixture in forming MMT or MMT crude and are also silent as to specific process steps for how water contacts the diene mixture. The terminology "MMT crude" do not appear in any of the instant claims. Additional prior art has been cited for the record concerning removing impurities from MMT synthesis.

It is argued that Spainhour is not analogous art due to its classification since it is classified in class 528, subclass 373, whereas the subject application is provisionally classified in class 210, and due to it's not being reasonably pertinent to the problem the inventor was solving. Such arguments are rebutted by what is stated in Section 2131.05 of the MPEP. Here the Manual states that arguments directed to whether prior art is anticipatory or not recognized as solving the problem solved by the claimed invention are not germane to a rejection under section 102. "Arguments that the alleged anticipatory prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane'

to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting In re Self, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). See also State Contracting & Eng ' g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (The question of whether a reference is analogous art is not relevant to whether that reference anticipates. A reference may be directed to an entirely different problem than the one addressed by the inventor, or may be from an entirely different field of endeavor than that of the claimed invention, yet the reference is still anticipatory if it explicitly or inherently discloses every limitation recited in the claims.).

With respect to the 103 rejection of claims 6 and 7, applicant states that the motivation is not stated by the Examiner and that the time period between the references issuing relative to each other and to the filing date of the subject application teaches against obviousness. The Office Action expressly states the motivation to combine, namely that the teaching reference teaches that contaminants including alcohol and water can be removed from a diene polymer using a sieve or alumina bed to result in a more highly purified product such as having 99.99+% purity (expressly taught at column 5, lines 12-27 of Krouse). Achieving of a very high degree of purity constitutes a convincing line of reasoning to combine references, both of which are directed to purifying/concentrating of diene polymeric products having water and alcohol impurities at one or more stages of processing.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

December 5, 2006

Joseph Drodge
Primary Examiner